

CLAIMS

- sub a1
1. An isolated polynucleotide which encodes a protein comprising the amino acid sequence of SEQ ID NO:2.
 2. The isolated polynucleotide of Claim 1, wherein said protein has LysR1 transcriptional regulatory activity.
 3. An isolated polynucleotide, which comprises SEQ ID NO:1.
 - sub a2
4. An isolated polynucleotide which is complimentary to the polynucleotide of Claim 3.
 5. An isolated polynucleotide which is at least 70% identical to the polynucleotide of Claim 3.
 6. An isolated polynucleotide which is at least 80% identical to the polynucleotide of Claim 3.
 7. An isolated polynucleotide which is at least 90% identical to the polynucleotide of Claim 3.
 - sub a3
8. An isolated polynucleotide which hybridizes under stringent conditions to the polynucleotide of Claim 3; wherein said stringent conditions comprise washing in 5X SSC at a temperature from 50 to 68°C.
 9. The isolated polynucleotide of Claim 3, which encodes a protein having LysR1 transcriptional regulatory activity.
 10. An isolated polynucleotide which comprises at least 15 consecutive nucleotides of the polynucleotide of Claim 3.
 - sub a4
11. The isolated polynucleotide of Claim 10 which comprises SEQ ID NO:3.
 12. A vector comprising the isolated polynucleotide of Claim 1.

13. A vector comprising the isolated polynucleotide of Claim 3.

14. A host cell comprising the isolated polynucleotide of Claim 1.

5 15. A host cell comprising the isolated polynucleotide of Claim 3.

16. The host cell of Claim 14, which is a *Coryneform* bacterium.

10 17. The host cell of Claim 15, which is a *Coryneform* bacterium.

18. The host cell of Claim 14, wherein said host cell is selected from the group consisting of *Coryneform glutamicum*, *Corynebacterium acetoglutamicum*, *Corynebacterium acetoacidophilum*, *Corynebacterium melassecola*, *Corynebacterium thermoaminogenes*, *Brevibacterium flavum*, *Brevibacterium lactofermentum*, *Brevibacterium divaricatum*.

15 19. The host cell of Claim 15, wherein said host cell is selected from the group consisting of *Coryneform glutamicum*, *Corynebacterium acetoglutamicum*, *Corynebacterium acetoacidophilum*, *Corynebacterium melassecola*, *Corynebacterium thermoaminogenes*, *Brevibacterium flavum*, *Brevibacterium lactofermentum*, *Brevibacterium divaricatum*.

20 20. A *Coryneform* bacterium which comprises an attenuated *lysR1* gene.

21. The *Coryneform* bacterium of Claim 21, wherein said *lysR1* gene comprises the polynucleotide sequence of SEQ ID NO:1.

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22. *Escherichia Coli* DSM 13616.
23. A process for producing L-amino acids comprising culturing a bacterial cell in a medium suitable for producing L-amino acids, wherein said bacterial cell comprises an attenuated *lysR1* gene.
24. The process of Claim 23, wherein said bacterial cell is a *Coryneform bacterium* or *Brevibacterim*.
25. The process of Claim 24, wherein said bacterial cell is selected from the group consisting of *Coryneform glutamicum*, *Corynebacterium acetoglutamicum*, *Corynebacterium acetoacidophilum*, *Corynebacterium melassecola*, *Corynebacterium thermoaminogenes*, *Brevibacterium flavum*, *Brevibacterium lactofermentum*, *Brevibacterium divaricatum*.
26. The process of Claim 23, wherien said *lysR1* gene comprises the polynucleoitde sequence of SEQ ID NO:1.
27. The process of Claim 23, wherein said L-amino acid is L-lysine.
28. The process of Claim 23, wherein said L-amino acid is L-valine.
29. The process of Claim 23, wherein said bacteria further comprises at least one gene whose expression is enhanced, wherein said gene is selected from the group consisting of *dapA*, *eno*, *zwf*, *pyc*, and *lysE*.
30. The process of Claim 23, wherein said bacteria further comprises at least one gene whose expression is attenuated, wherein said gene is selected from the group consisting of *pck*, *pgi*, and *poxB*.
31. A process for screening for polynucleotides which encode a protein having *LysR1* transcriptional regulatory activity comprising hybridizing the isolated

polynucleotide of Claim 1 to the polynucleotide to be screened; expressing the polynucleotide to produce a protein; and detecting the presence or absence of LysR1 transcriptional regulatory activity in said protein.

5 32. A process for screening for polynucleotides which encode a protein having LysR1 transcriptional regulatory activity comprising hybridizing the isolated
10 polynucleotide of Claim 3 to the polynucleotide to be screened; expressing the polynucleotide to produce a protein; and detecting the presence or absence of LysR1 transcriptional regulatory activity in said protein.

15 33. A method for detecting a nucleic acid with at least 70% homology to nucleotide of Claim 1, comprising contacting a nucleic acid sample with a probe or primer comprising at least 15 consecutive nucleotides of the
20 nucleotide sequence of Claim 1, or at least 15 consecutive nucleotides of the complement thereof.

25 34. A method for producing a nucleic acid with at least 70% homology to nucleotide of Claim 1, comprising contacting a nucleic acid sample with a primer comprising at least 15 consecutive nucleotides of the
30 nucleotide sequence of Claim 1, or at least 15 consecutive nucleotides of the complement thereof.

35 35. A method for detecting a nucleic acid with at least 70% homology to nucleotide of Claim 3, comprising contacting a nucleic acid sample with a probe or primer comprising at least 15 consecutive nucleotides of the
40 nucleotide sequence of Claim 3, or at least 15 consecutive nucleotides of the complement thereof.

36. A method for producing a nucleic acid with at least 70% homology to nucleotide of Claim 3, comprising contacting a nucleic acid sample with a primer comprising at least 15 consecutive nucleotides of the

nucleotide sequence of Claim 3, or at least 15 consecutive nucleotides of the complement thereof.

37. A method for making LysR1 protein, comprising:
culturing the host cell of Claim 14 for a time and under
5 conditions suitable for expression of LysR1 protein, and
collecting the LysR1 protein.

38. A method for making LysR1 protein, comprising:
culturing the host cell of Claim 15 for a time and under
conditions suitable for expression of LysR1 protein, and
10 collecting the LysR1 protein.

39. An isolated polypeptide comprising the amino acid
sequence of SEQ ID NO:2.

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